THE ANALYSIS CENTRE

IN THE HELMHOLTZ ALLIANCE "PHYSICS AT THE TERASCALE"

Thomas Schörner-Sadenius (DESY)

Tuesday Seminar, DESY Hamburg
13 January 2009

OUTLINE

Reminder: The Helmholtz Alliance "Physics at the Terascale" and its Analysis Centre

- Helmholtz Alliances, "Physics at the Terascale"
- The Analysis Centre
- DESY and the Analysis Centre
- A working example: The LPC @ FermiLab

The Analysis Centre: Activities, groups, services

- The MC, Statistics Tools and PDF groups
- Education: Schools, Workshops, Discussion Days, Seminars, Lectures
- Analysis Working Groups
- Further activities: Support, web/WIKI, ...

Status and Outloook

- Achievements
- Problems, handicaps, obstacles
- Questions and discussion ...

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- Achiever
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100% free of physics!!!!

My true intention:
- To convince you of the idea behind the centre;
- to attract you to the centre and
- to get you involved.

HELMHOLTZ ALLIANCES

Helmholtz Alliances

- New funding scheme for research topics of current interest.
- Significant financial and material resources (5-10 MEuro / year).
- Aim to strategically enhance the profile of the Helmholtz centre (DESY).

Research

- Brings together universities, Helmholtz Centres and other non-university research institutions.
- Covers all fields of science: Examples of granted alliances:
  * Cosmic Matter in the Laboratory (Extremes of Density and Temperature)
  * Immunotherapy of Cancer
  * Systems Biology
  * MEM-BRAIN
  * Mental Health in an Ageing Society
  * Physics at the Terascale
  * Planetary Evolution and Life

DESY

... and the Terascale Alliance were the first Helmholtz Alliance.

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  * Physics at the
  * Planetary Evol

DESY

... and the Terasca

Central insight: Complementarity of Helmholtz centres (like DESY) and universities. Centres ...

... can provide broader support and services than universities.

... have long-standing expertise for running large-scale facilities.

... don't have to be responsible for the daily research work, can concentrate on issues of more general relevance / impact.

"PHYSICS AT THE TERASCALE"

Quotation from the Alliance web page (http://www.terascale.de):

With the start-up of CERN's Large Hadron Colllider (LHC) in 2007 and preparations for the International Linear Collider (ILC) in full swing, we expect revolutionary results explaining the origin of matter, unravelling the nature of dark matter and providing glimpses of extra spatial dimensions or grand unification of forces. Any of these insights would dramatically change our view of the world.

In order to optimally place German particle physics in an increasingly global environment, it is now the right moment to create new and improved structures for particle physics in Germany.

The Strategic Helmholtz Alliance 'Physics at the Terascale' is a structured research network comprising 17 universities, 2 Helmholtz institutes and 1 Max Planck Institute. The Alliance acts as a tool for a more effective collaboration, in particular between experimentalists and theorists.

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DESY cannot maintain status as THE large German HEP lab by doing the same as universities do!

=> Concentrate on services / facilities /infrastructure not easily accessible at universities (test beams, detector labs, "Analysis Centre", ...).

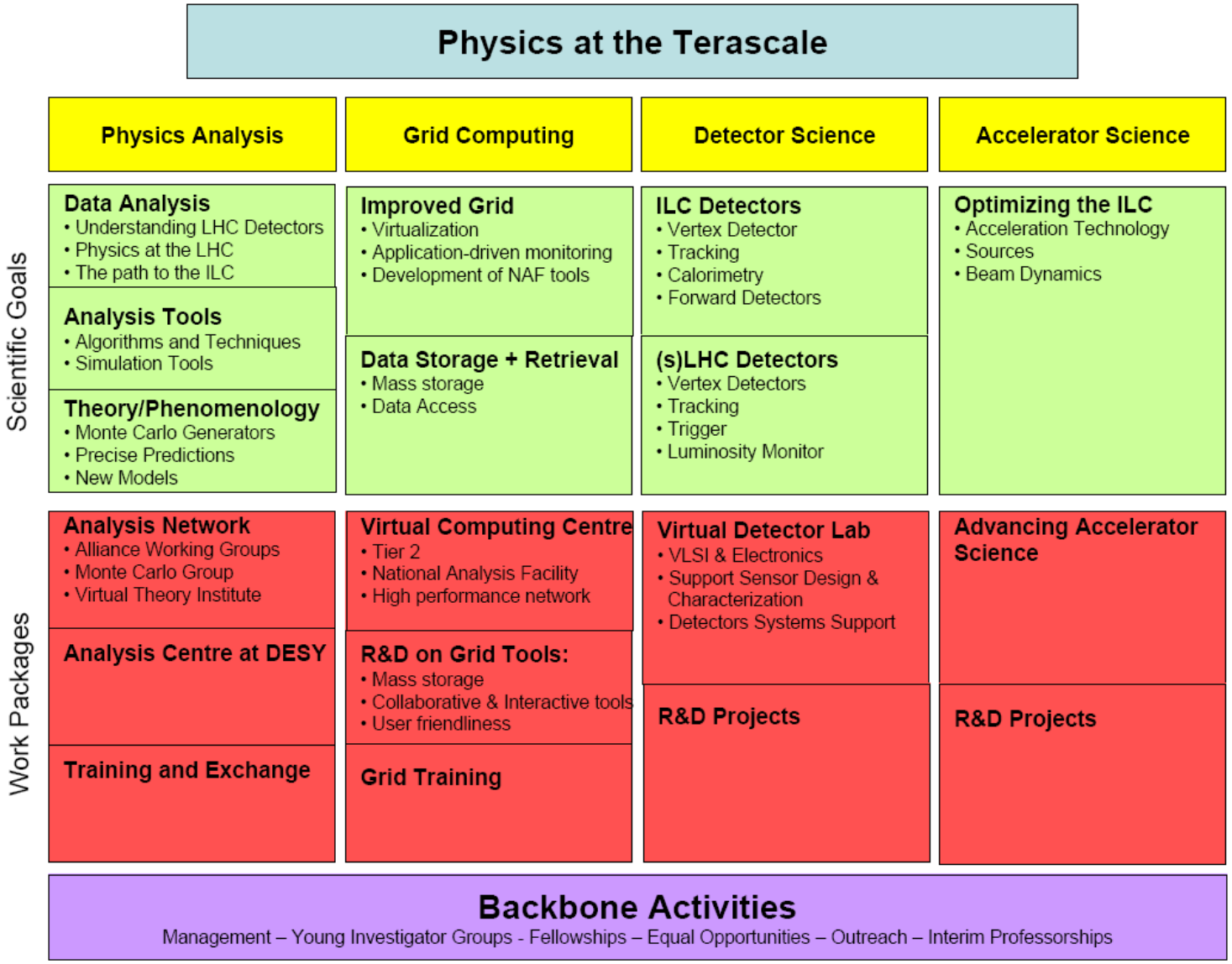
=> benefit for DESY AND the universities.

DESY and the Terascale Alliance:

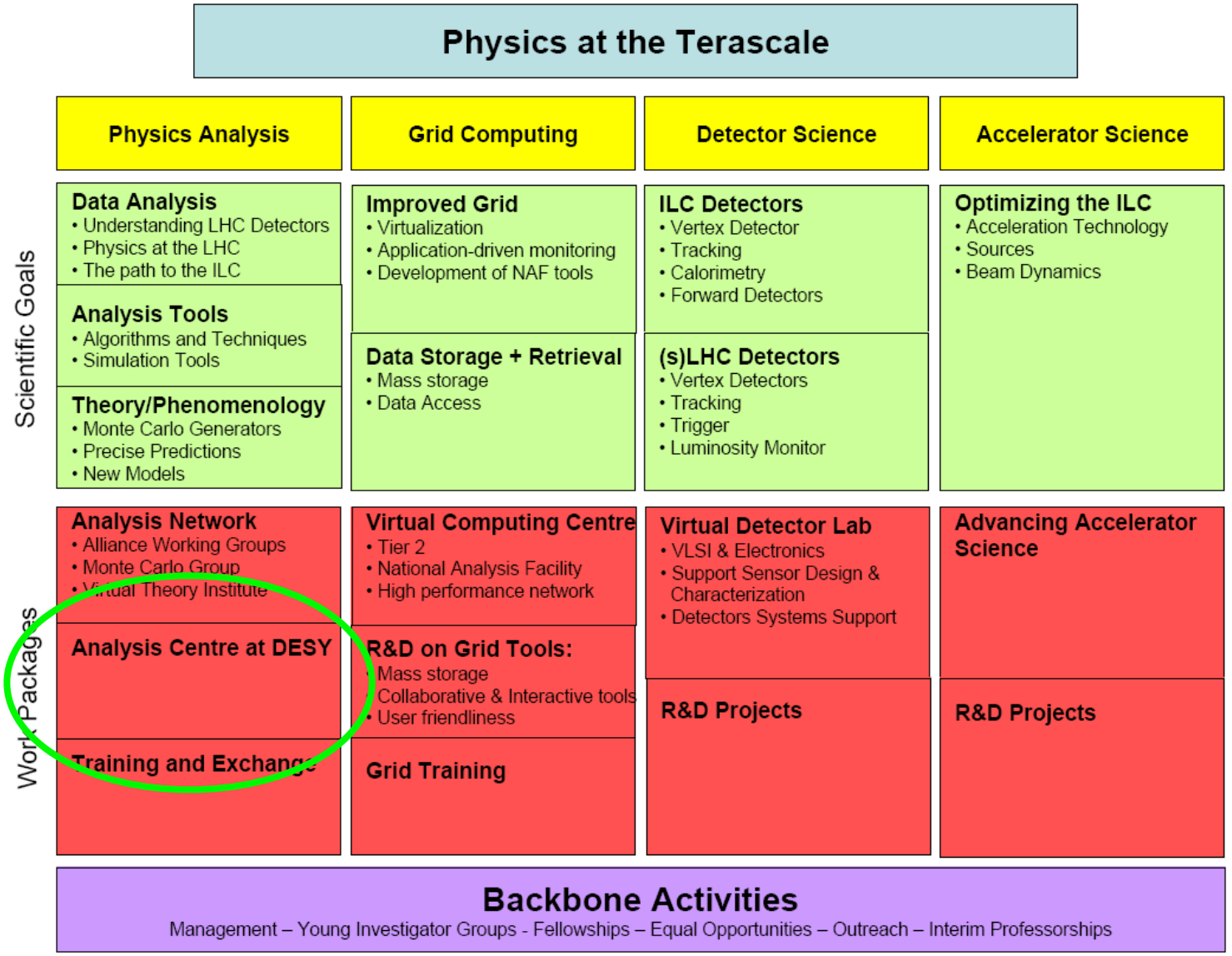
- Long experience in running large facilities, but no big project after the end of HERA
- Competency in areas not in general covered by universities (e.g. PDFs from HERA times, ...)
- Experience in hosting large groups of scientists; acting as a central hub for activities.

"PHYSICS AT THE TERASCALE"

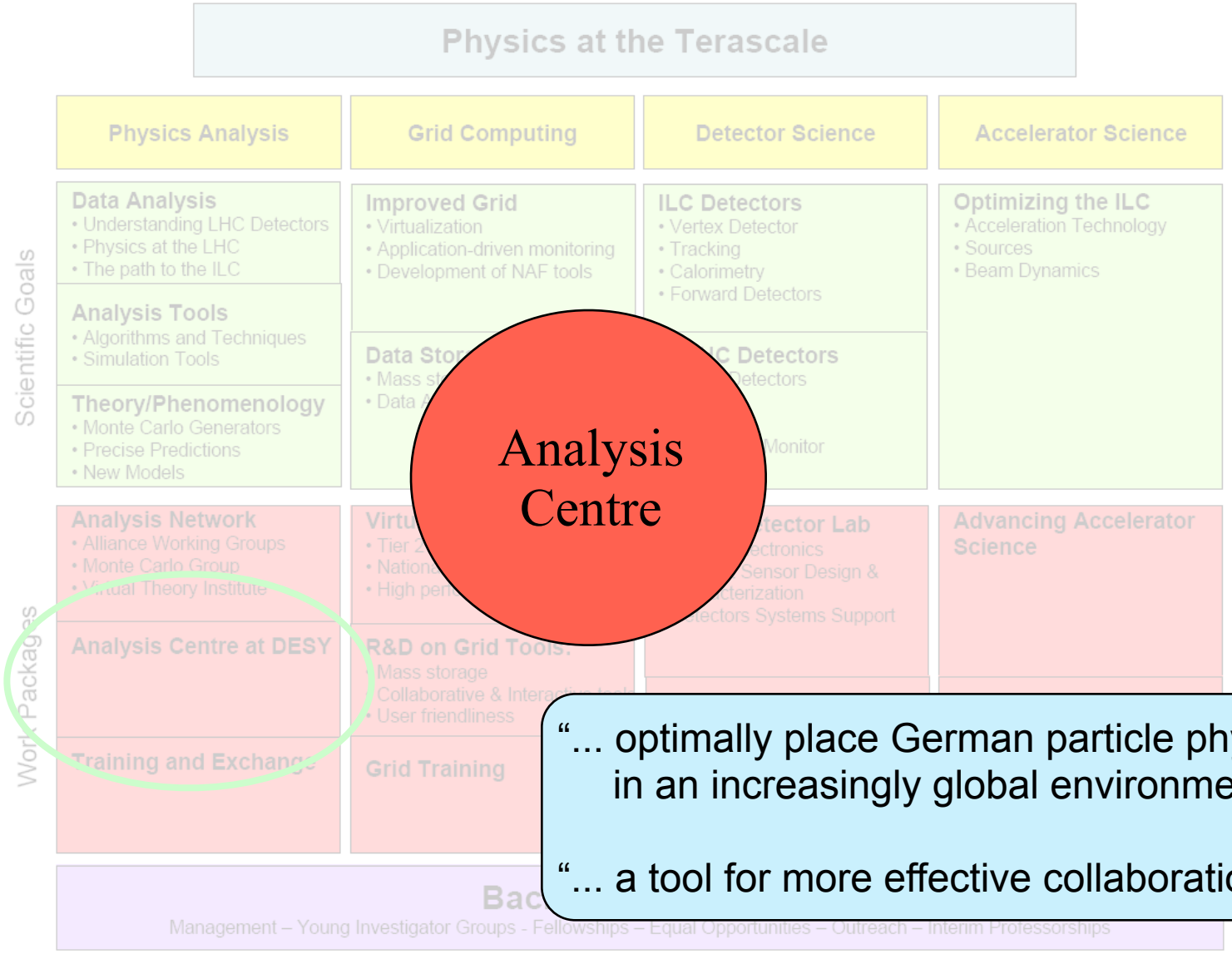
"PHYSICS AT THE TERASCALE"



"PHYSICS AT THE TERASCALE"



THE ANALYSIS CENTRE

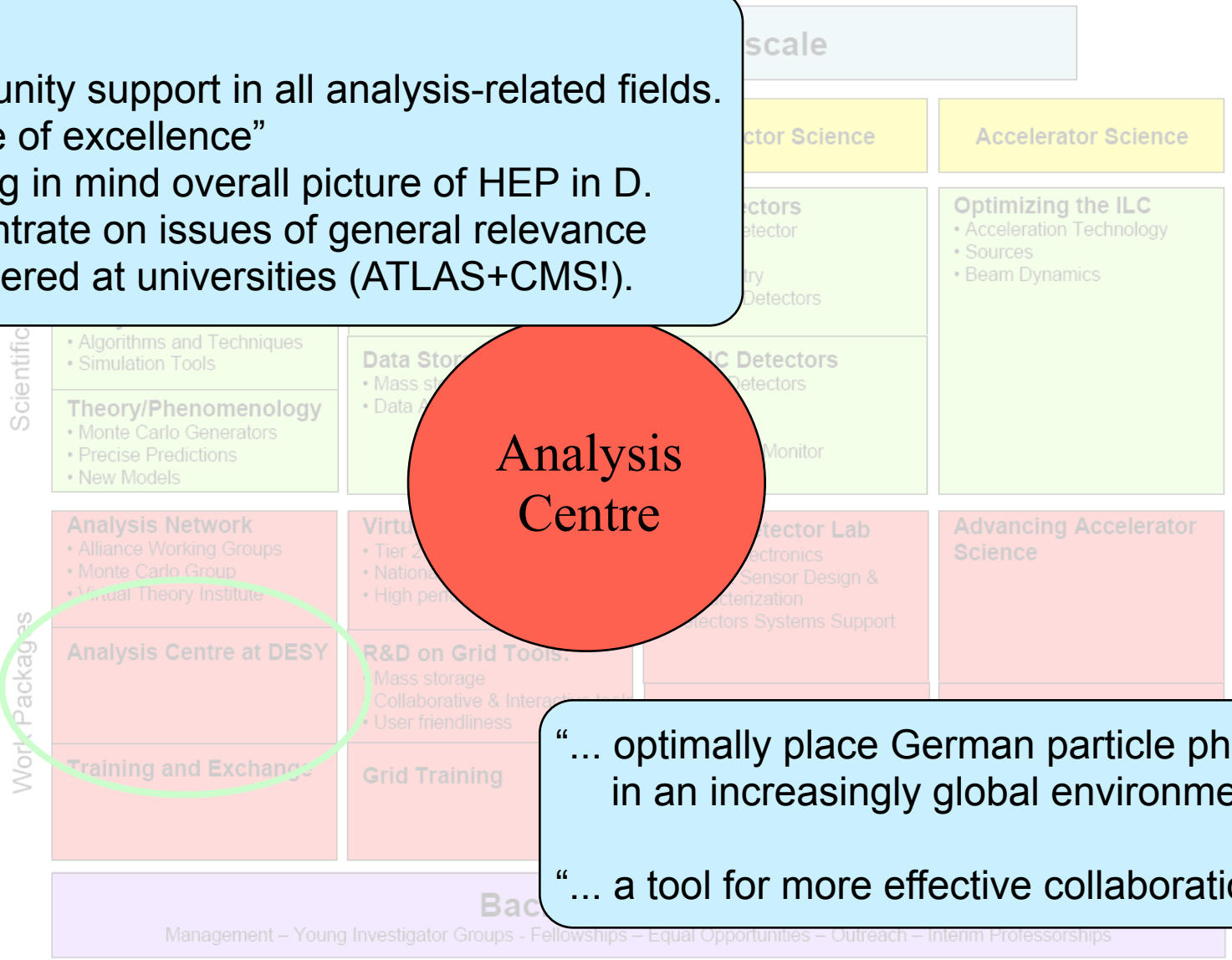


"... optimally place German particle physics in an increasingly global environment ..."

"... a tool for more effective collaboration ..."

THE ANALYSIS CENTRE

Tasks:
- Community support in all analysis-related fields.
- “Centre of excellence”
- Keeping in mind overall picture of HEP in D.
- Concentrate on issues of general relevance not covered at universities (ATLAS+CMS!).

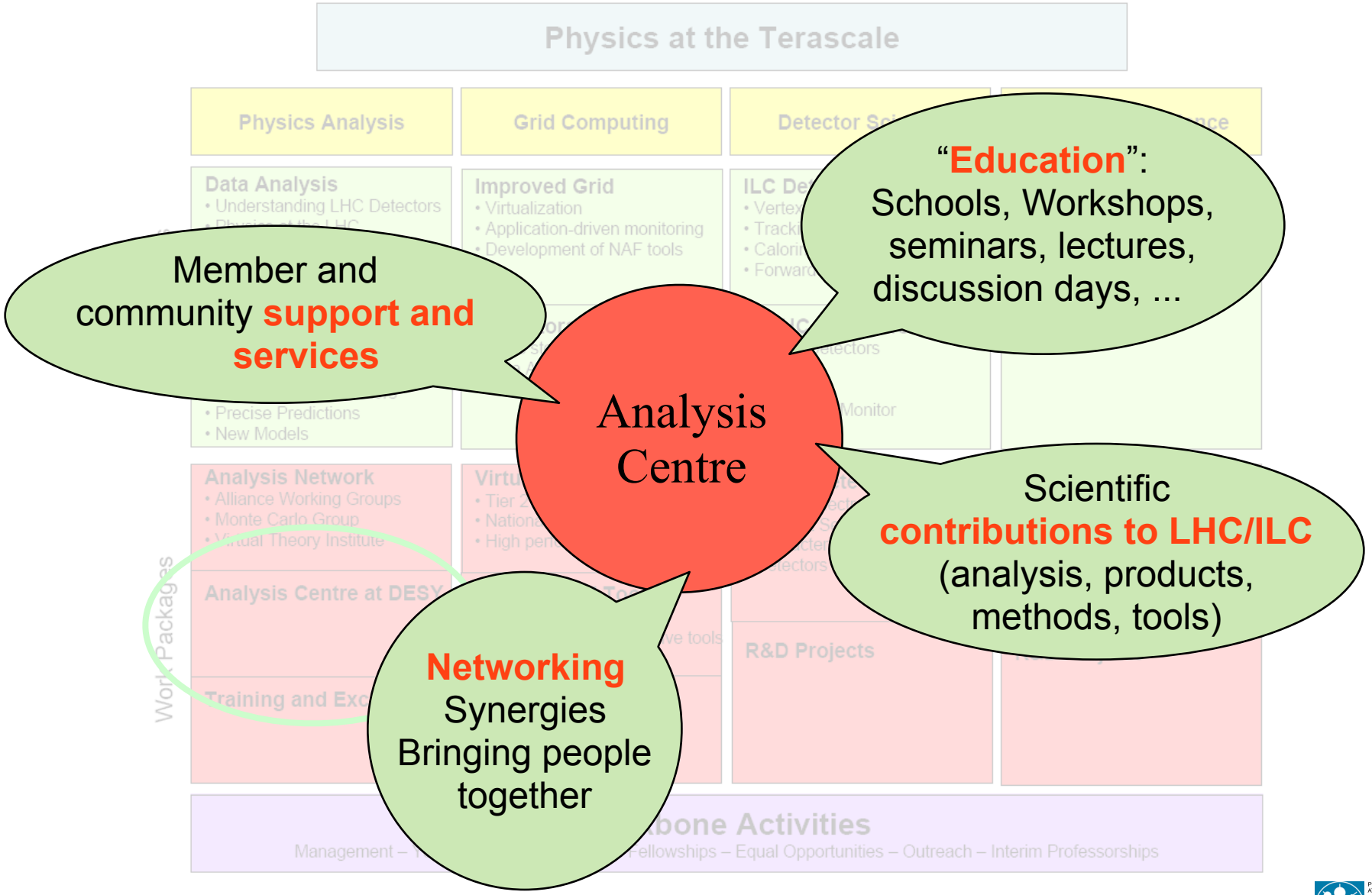


Analysis Centre

“... optimally place German particle physics in an increasingly global environment ...“

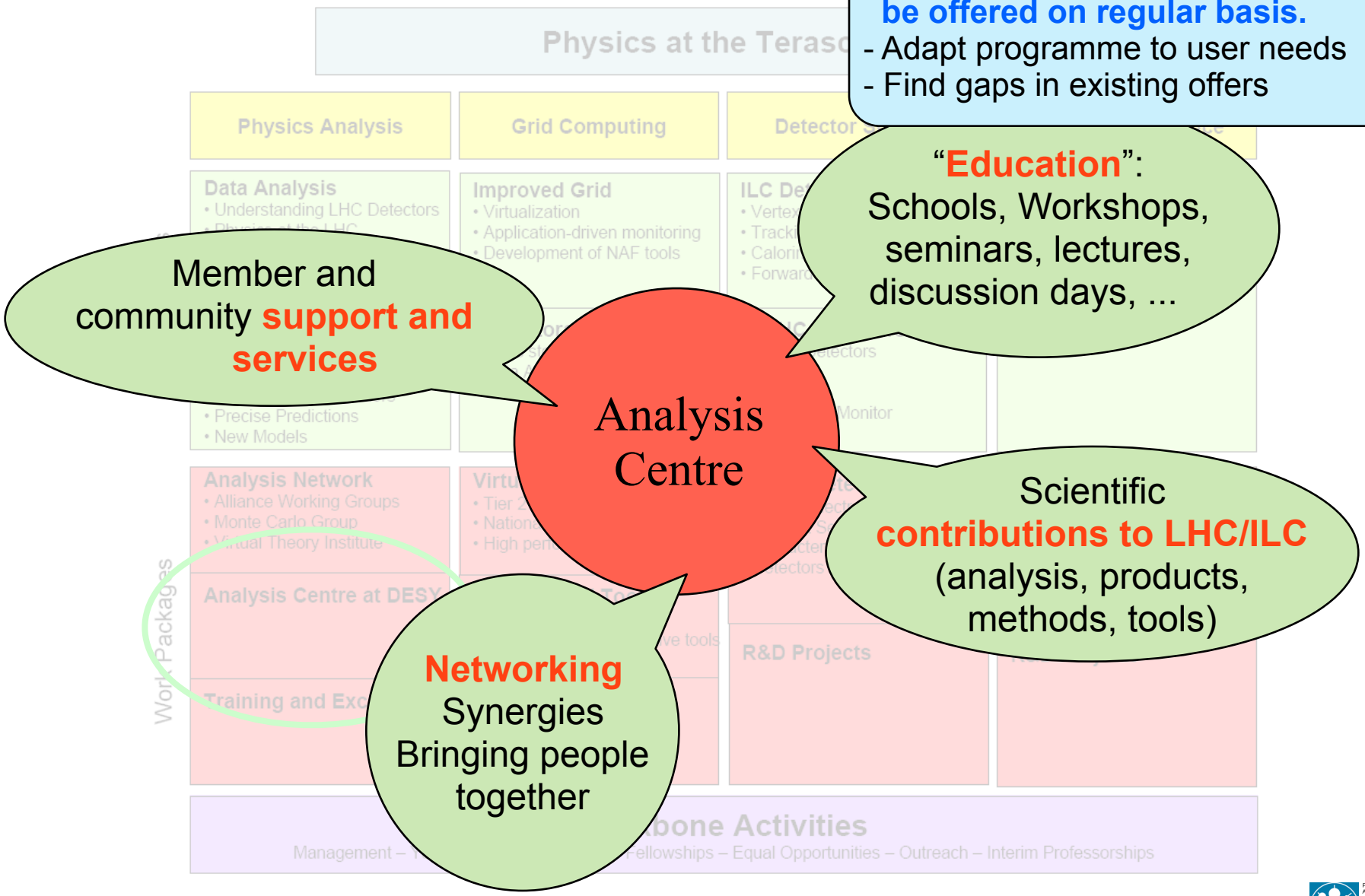
“... a tool for more effective collaboration ...”

THE ANALYSIS CENTRE



THE ANALYSIS CENTRE

- **Establish series of events, to be offered on regular basis.**
- Adapt programme to user needs
- Find gaps in existing offers



Member and community **support and services**

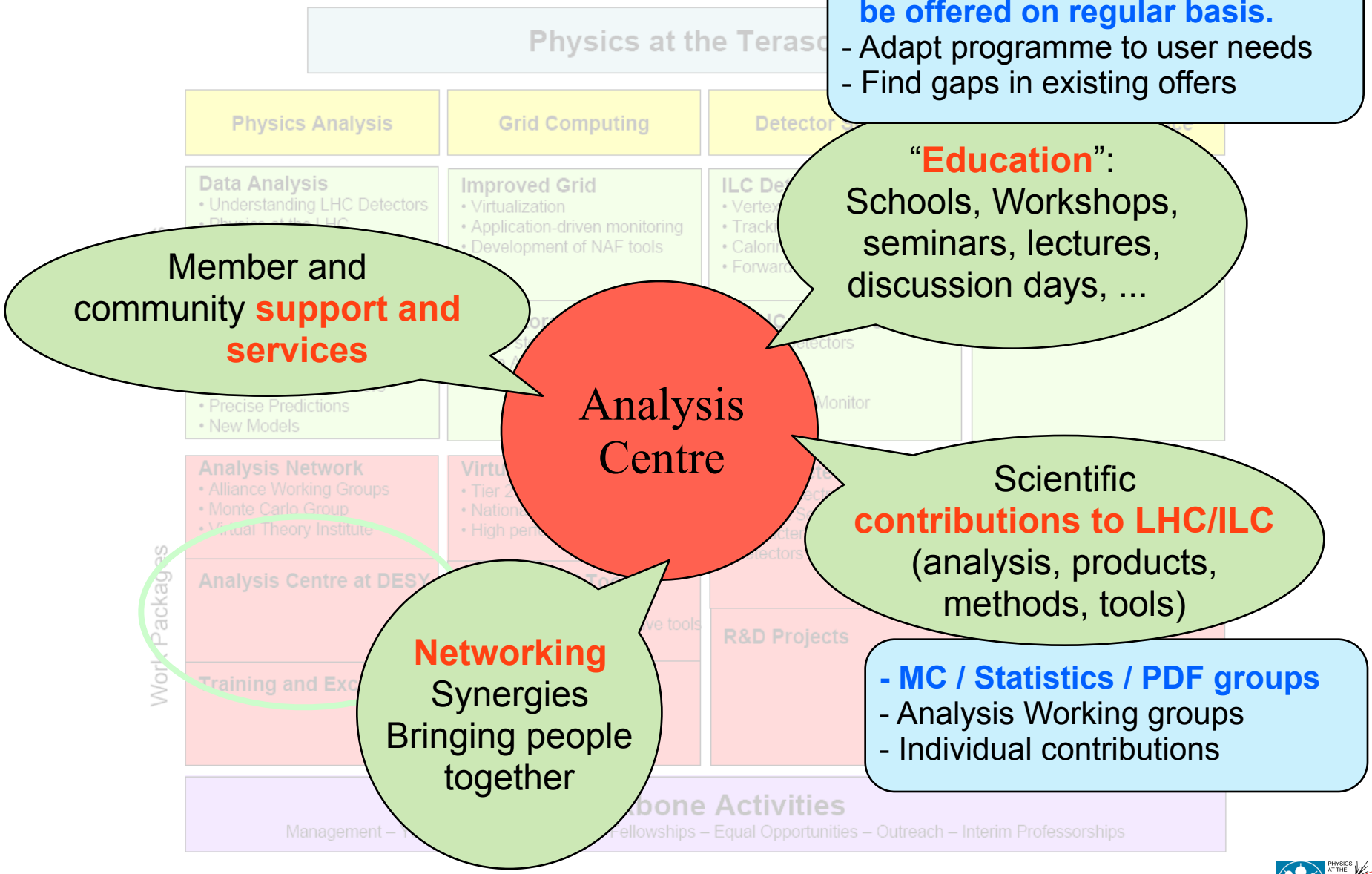
"**Education**": Schools, Workshops, seminars, lectures, discussion days, ...

Analysis Centre

Scientific **contributions to LHC/ILC** (analysis, products, methods, tools)

Networking
Synergies
Bringing people together

THE ANALYSIS CENTRE



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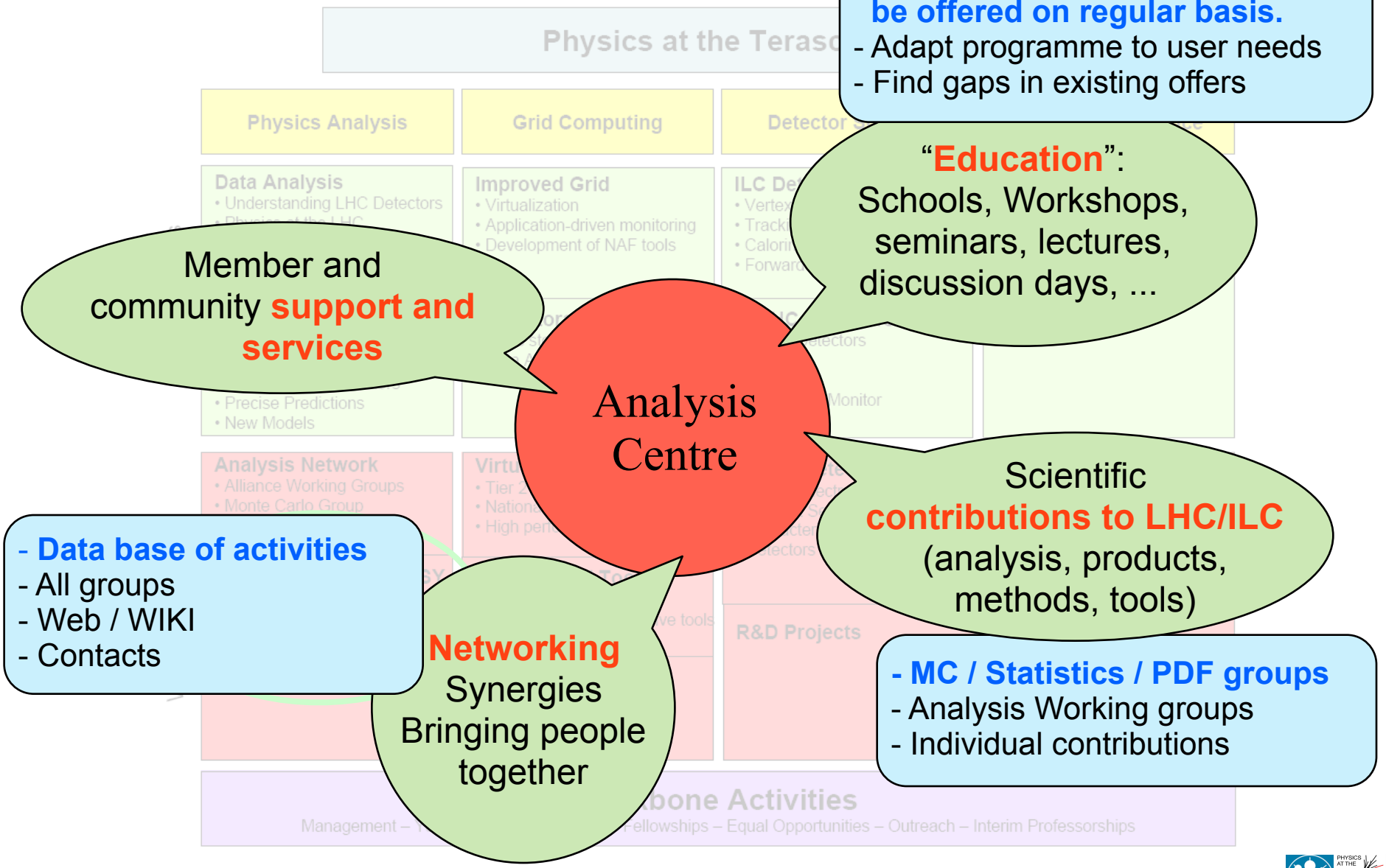

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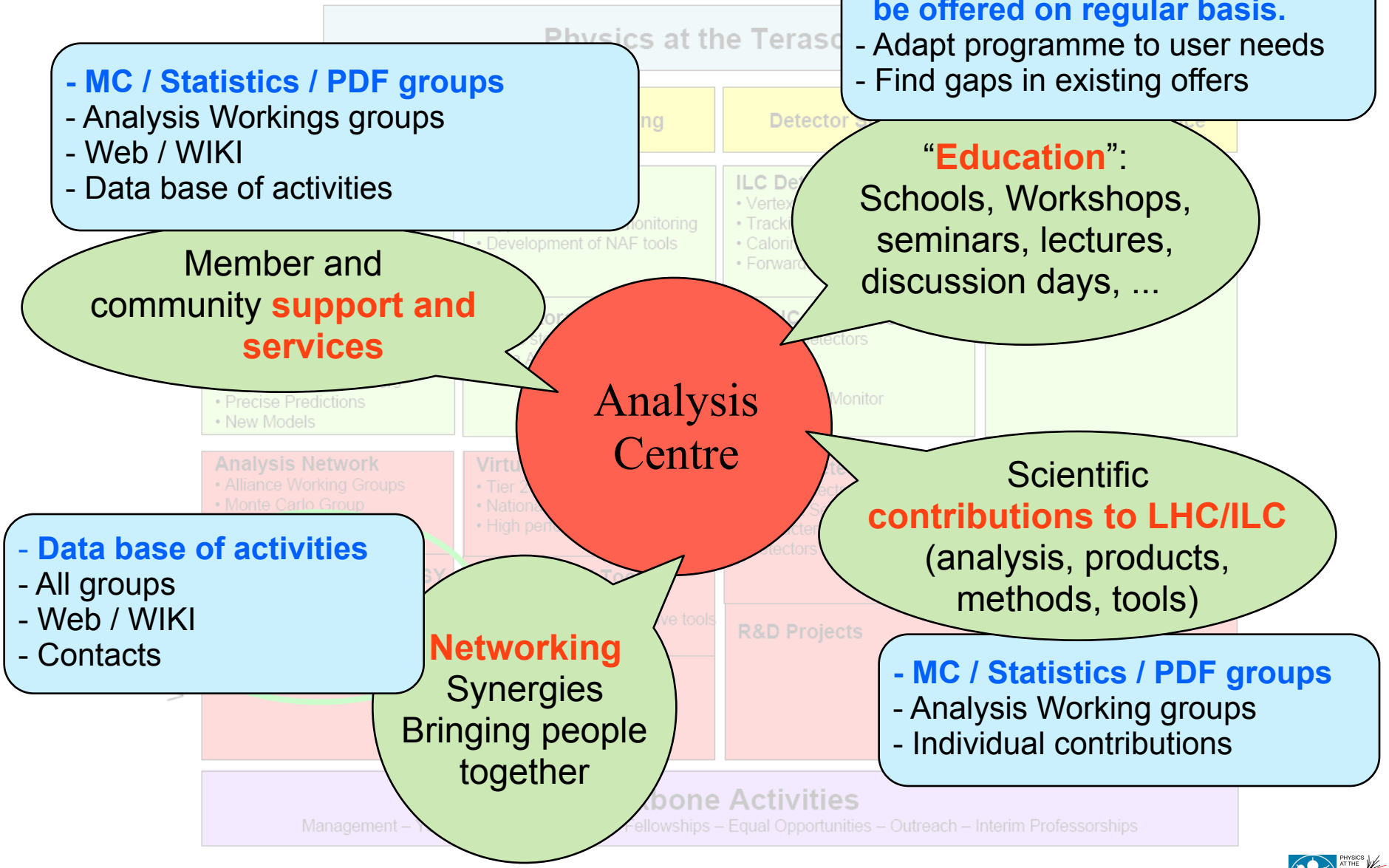
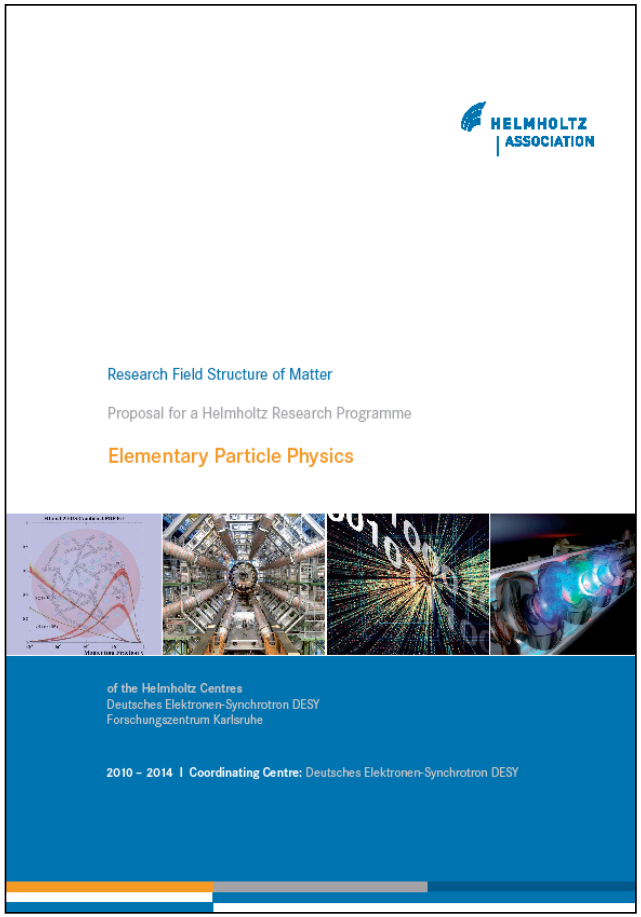


DESY AND THE ANALYSIS CENTRE

DESY Five Years Planning (PoF) 2010-14



- Programme Elementary Particle Physics
- Seven programme topics
  - **HERA**
  - **LHC**
  - **Preparation for a future lepton collider**
  - **Theoretical particle physics**
  - **Experimental facilites**
  - **Large-scale faility GridKa**
  - **Large-scale facility DESY Grid centre**
- Valuable input received from
  - **DESY advisory boards (WA, PRC, ESC)**
  - **German community (KET)**
  - **European community (ECFA)**
- Many thanks!!!

DESY AND THE ANALYSIS CENTRE

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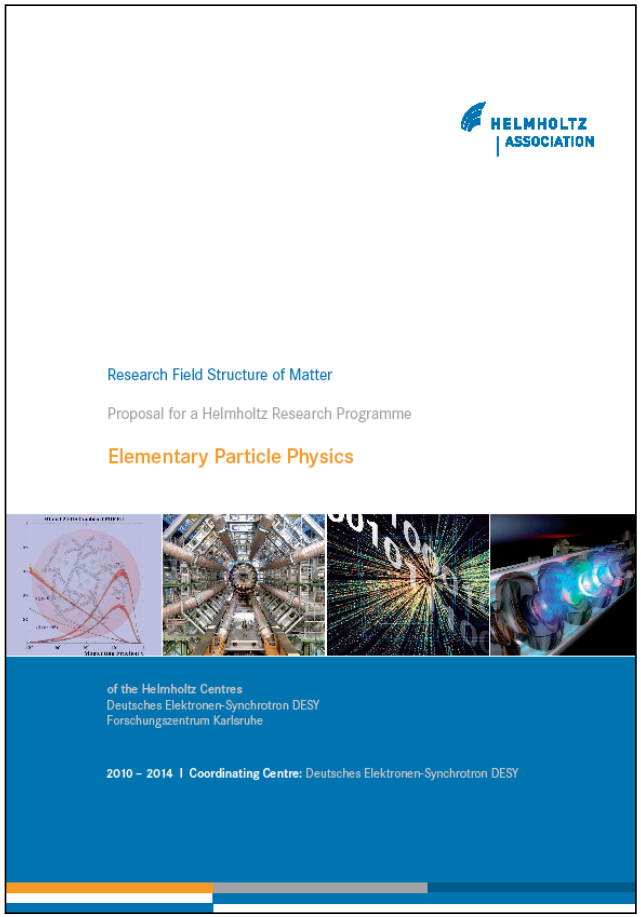

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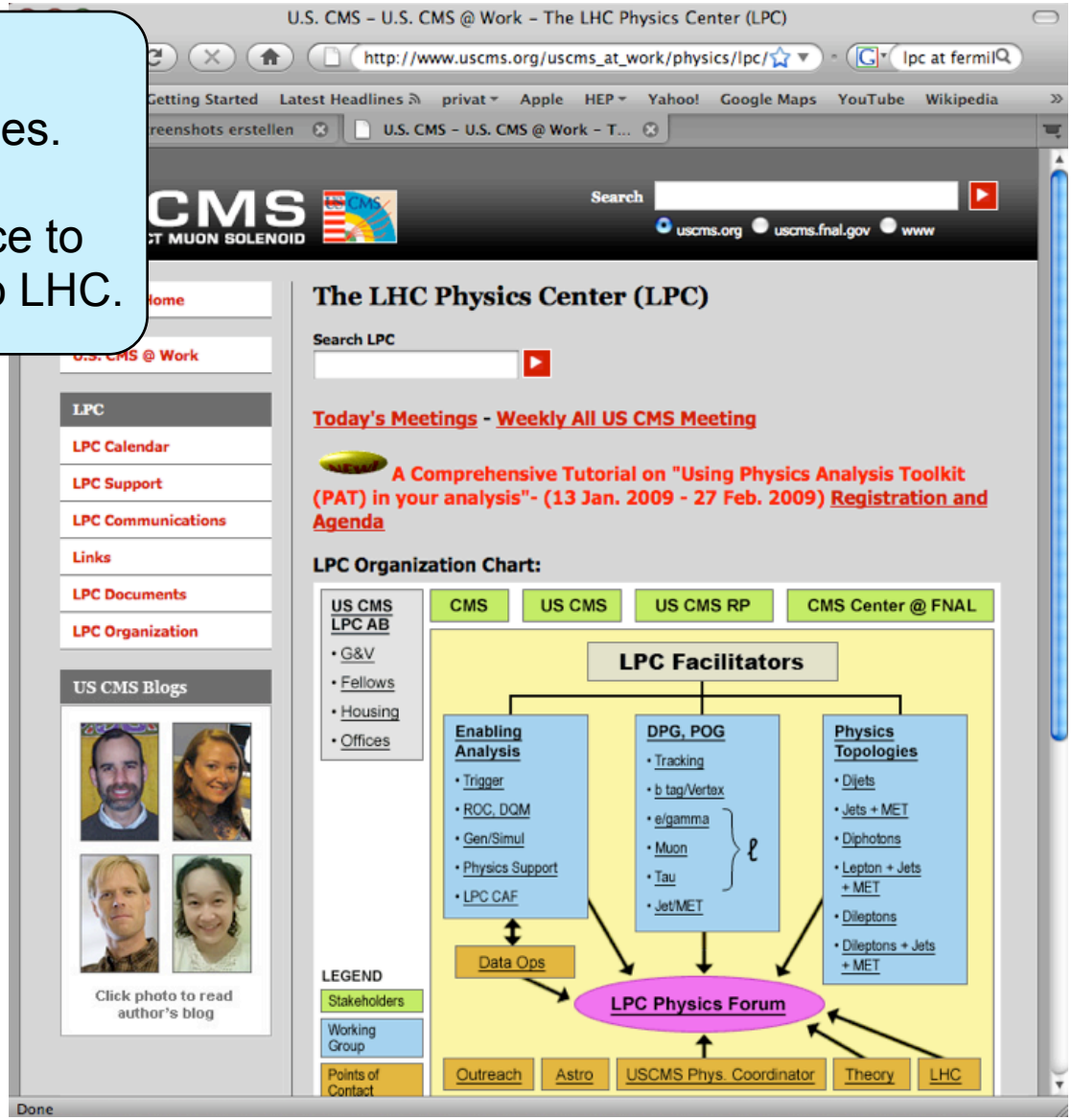
For DESY, the Terascale Alliance plays a major, if not a key role.

After the end of HERA, DESY's role as a major particle physics lab depends on facilities like the Analysis Centre, or the Virtual Detector Laboratory.

This central role is reflected in the planning for the next 5 years!

THE LPC @ FERMILAB

LPC = LHC Physics Centre
- Centre of ~50 US CMS universities.
- Started ~ 5 years ago.
- Needed because of large distance to CERN, difficulties to contribute to LHC.



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- Centre of ~50 US CMS universities.
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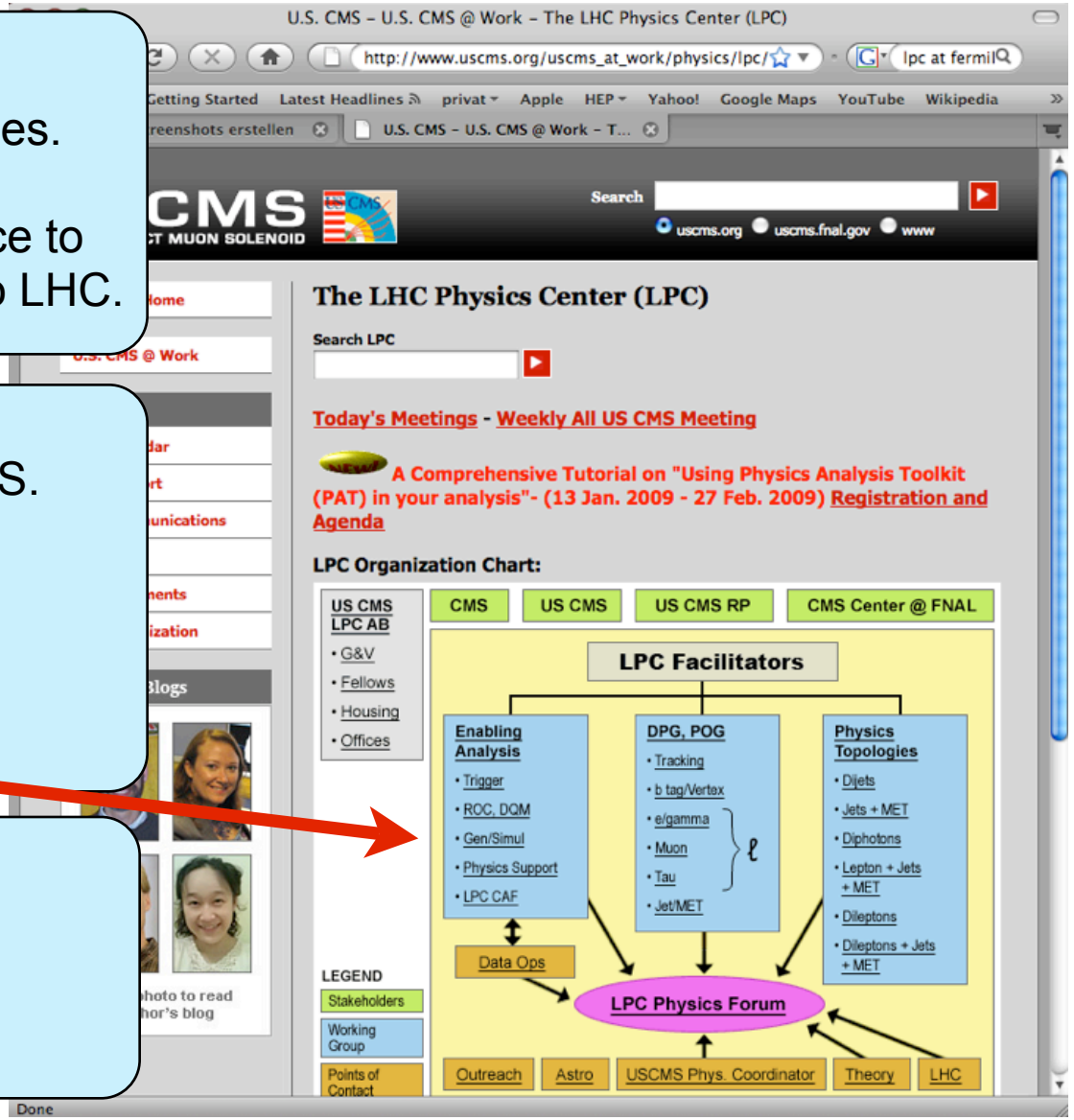
"Mission" and activities:
- Provide maximum service to CMS.
- Allow US residents to contribute.
- Training and workshops.
- Remote operations centre.
- "Get people going".
- Many active groups.

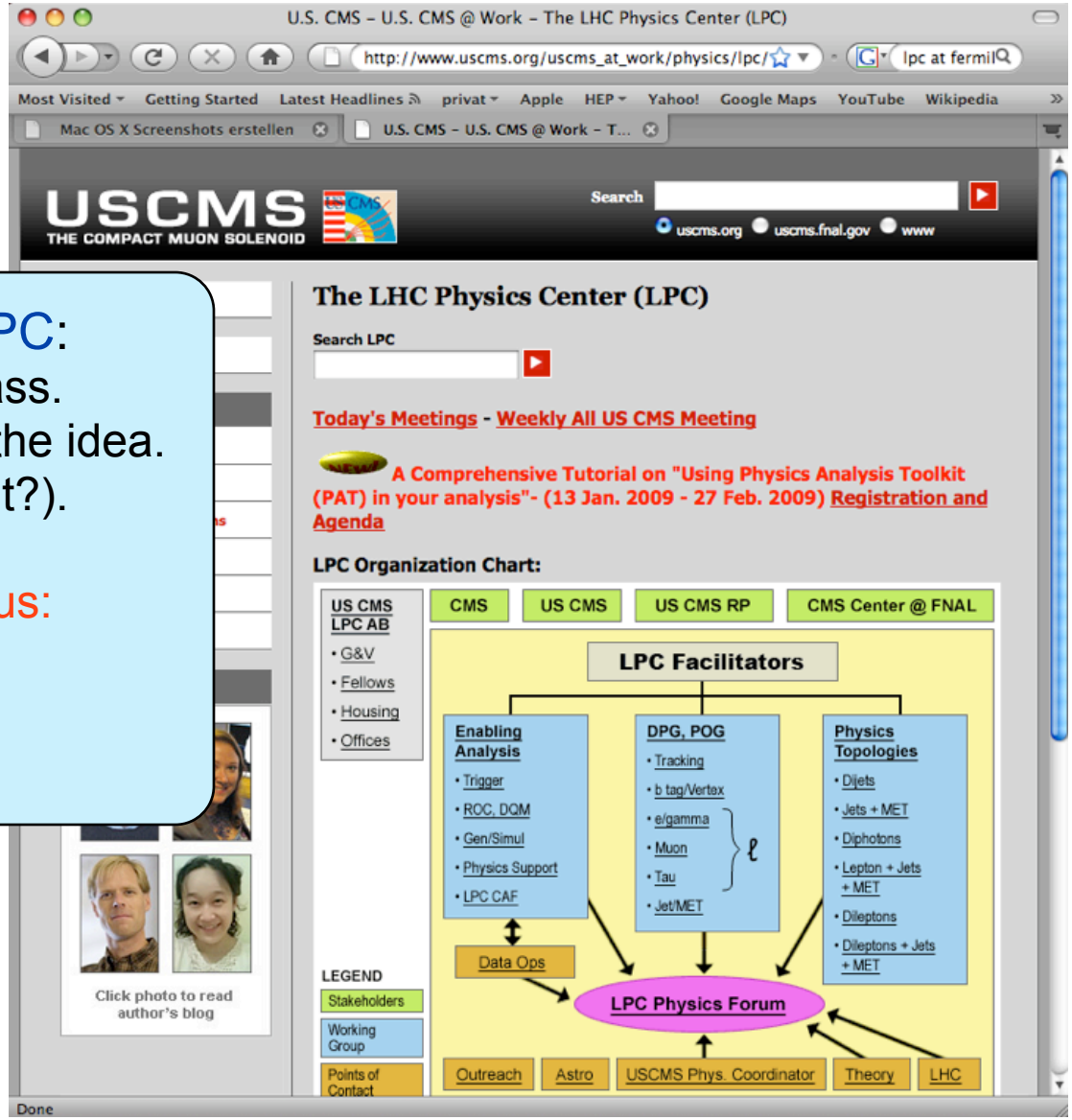
Status:
- Up to 100 people at FNAL.
- Significant contributions to CMS.
- "Home" to US CMS members.



THE LPC @ FERMILAB

Lessons to be learned from LPC:
- need long breath and critical mass.
- need high-level people to push the idea.
- need a good use-case (why do it?).

... but quite different situation for us:
- Close to CERN.
- Two (or more) experiments.
- ...



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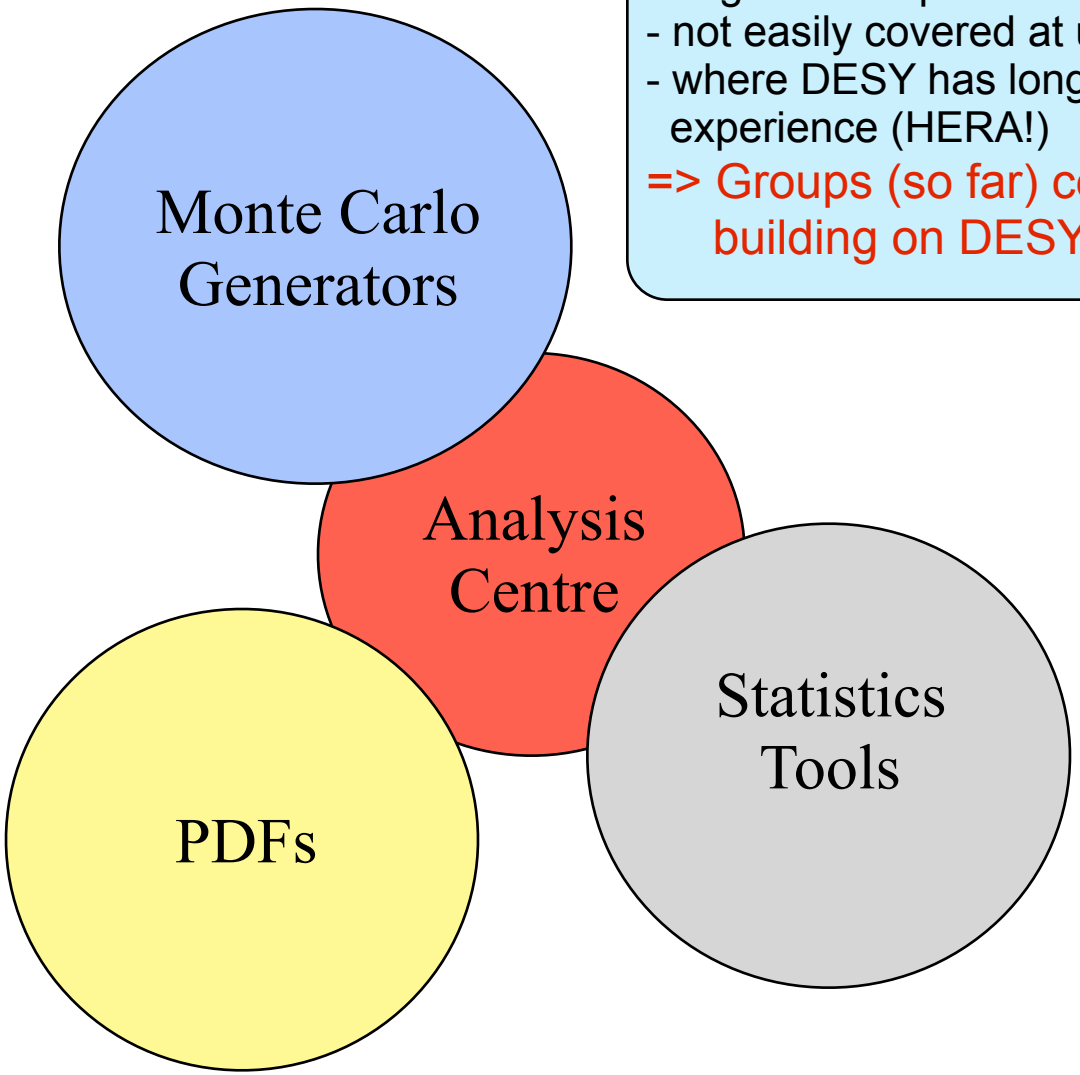
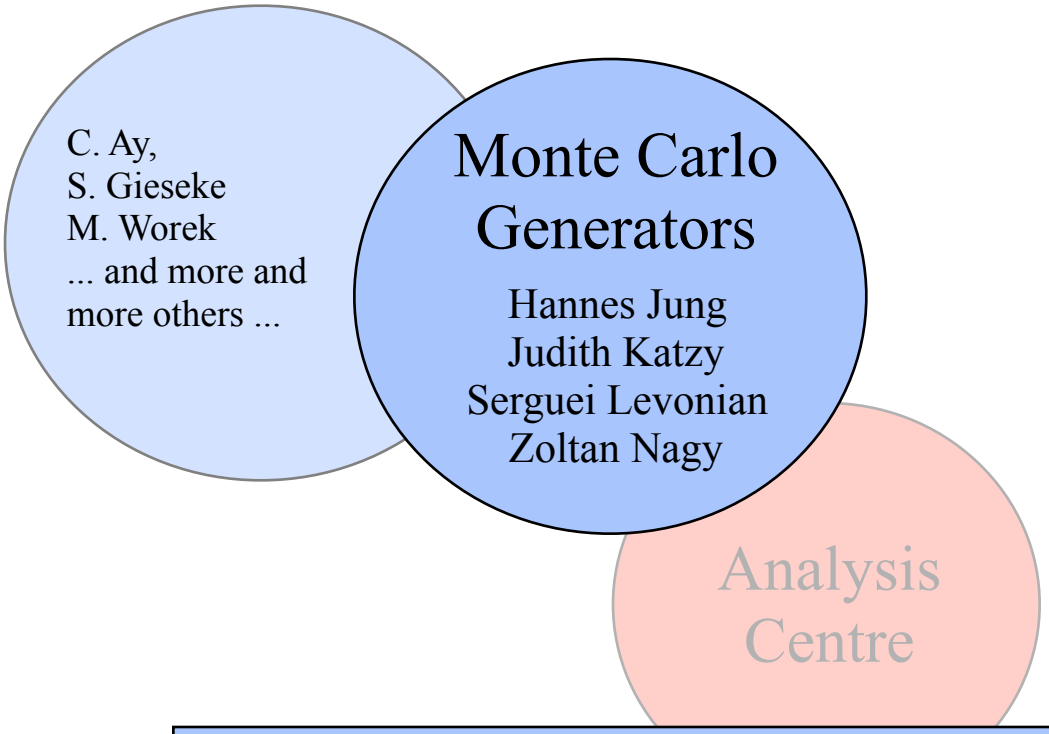
ACTIVITIES

Set-up of (so far) 3 working groups.
focusing on issues
- of general importance
- not easily covered at universities
- where DESY has long-standing experience (HERA!)

=> Groups (so far) centered at DESY, building on DESY experience!

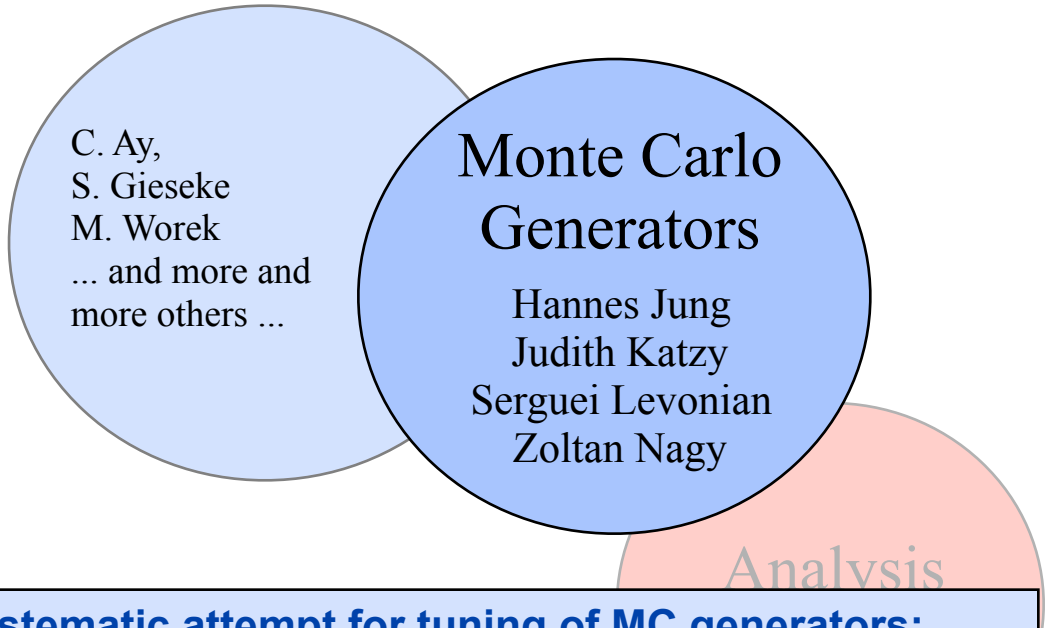


THE MONTE CARLO GROUP



- Experimentalists and theorists working on all aspects of MC generators.
- Support of MC validation and tuning.
- GeneratorServices (GENSER) mirror at DESY.
- Group members working on HepMCAnalyser tool, MC tuning, and (grid) tools for this purpose, new developments in k_T factorisation, new LO+NLO parton shower schemes, further development of CASCADE.
- Z. Nagy started 1.9.2008; further position announced soon.

THE MC GROUP: PROGRAMME



Systematic attempt for tuning of MC generators:
- determine PDF4MC using HERA data
- validate/x-check parton showering in MCs (multijets, energy flow, particle spectra).
- validate/tune Tevatron measurements

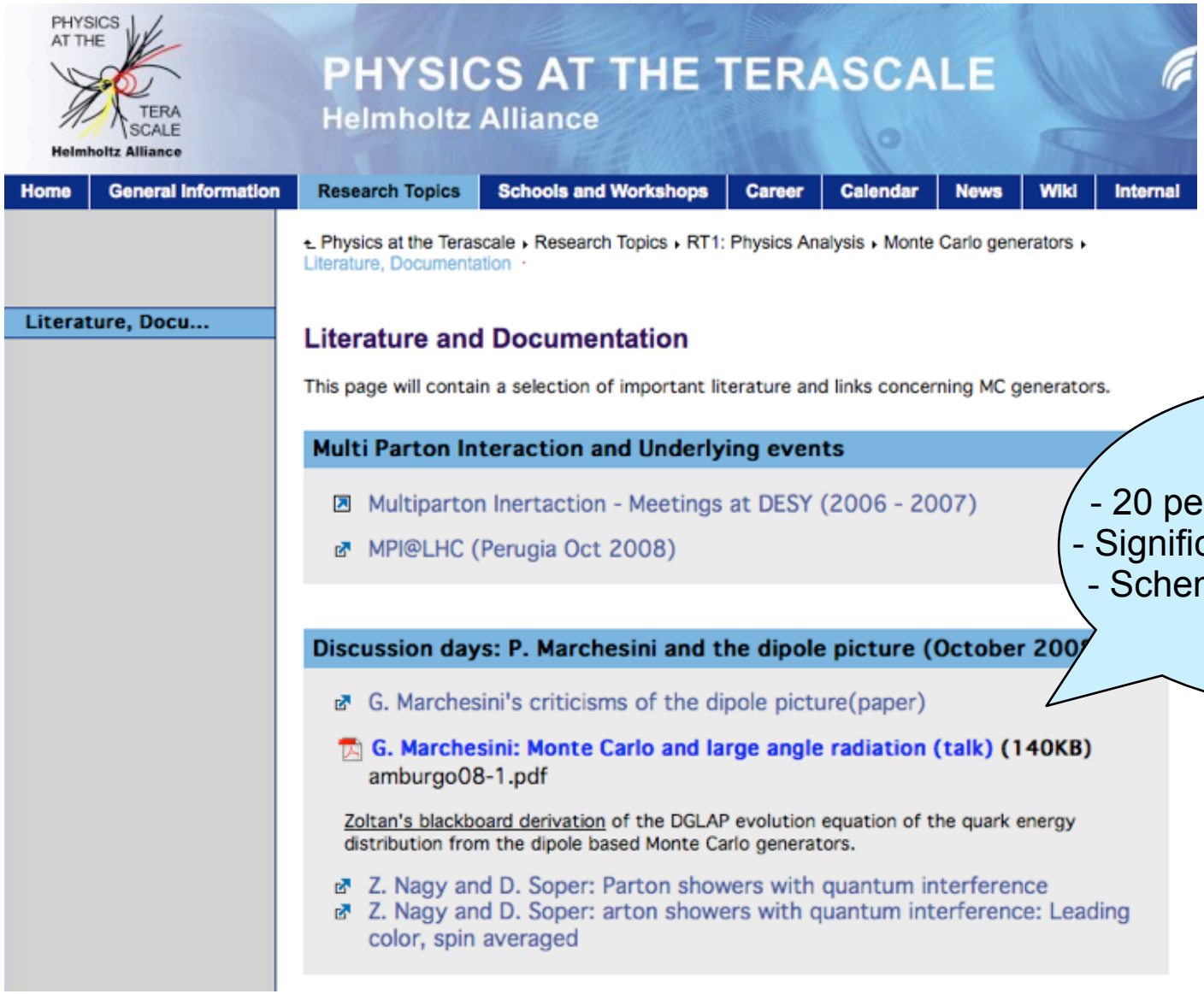
Phenomenology of parton showers

Phenomenology of UE/MPI
- Review of experimental evidence for MPI
- Review/predictions of non-MPI approaches including higher order calculations
- Systematic investigations of uncertainties
- Attempts for MPI: is it a soft or hard process?

Pheno weeks / discussion days:
- parton showers
- UE / MPI
- automated calculations.

Recent events very successful!

THE MC GROUP: WIKI / DOCU



- 20 people attending.
- Significant output ...
- Scheme to be continued!

MC GROUP: EXAMPLE PROJECT

HepMCAnalysis tool

Author:
Cano Ay, Sebastian Johnert, Judith Katzy, Zhonghua Qin

December 2008

Introduction

HepMCAnalyser is a tool for generator validation and comparisons. The main idea is to have a stable, easy-to-use and extendable framework to provide a fast access point to generator level analysis.

A class library with benchmark physics processes has been written to analyse HepMC generator output and fill root histogramms. The source code of the classes is in the HepMCAnalysis/include and src directories.

A web-interface is provided to display all or selected histogramms, compare to references and validate the results based on Kolmogorov Tests. These scripts are in HepMCAnalysis/examples/macros

Steerable example programs can be used for event generation and conversion to HepMC format. The steering it tuned to produce best agreement between the distributions of the different generators. The programms are in HepMCAnalysis/examples/generatorX where generatorX stands e.g. for pythia6, pythia8, herwigpp... .

MC GROUP: EXAMPLE PROJECT

Main Page | Namespace List | Class Hierarchy | Class List | Directories | File List | Class Members | File Members

HepMCAnalysis tool

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Introductio

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A class library wit
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A web-interface i
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Steerable exampl
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HepMCAnalysis/e

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HepMCAnalysis Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

- baseAnalysis
  - DiJetAnalysis
  - TauAnalysis
  - TopAnalysis
  - UEAnalysis
  - WplusJetAnalysis
  - ZAnalysis
- Configuration
- ThePEG::HepMCTraits< HepMC::GenEvent >

Generated on Fri Jan 9 13:20:49 2009 for HepMCAnalysis by doxygen *1.3.9.1*

THE PDF GROUP

- General support for PDFs
- Theory contributions (higher orders for hard scattering processes, PDFs and heavy flavours, ...)
- Goal: (contributions to) global PDF fitting activity (developing around HERA PDF activities?). Provision of open-source PDF fitting tools.
- Beginning of more intense discussions between group members and the H1 and ZEUS fitting group(s).

Analysis Centre

PDFs

Johannes Bluemlein
Sasha Glazov
Sven-Olaf Moch

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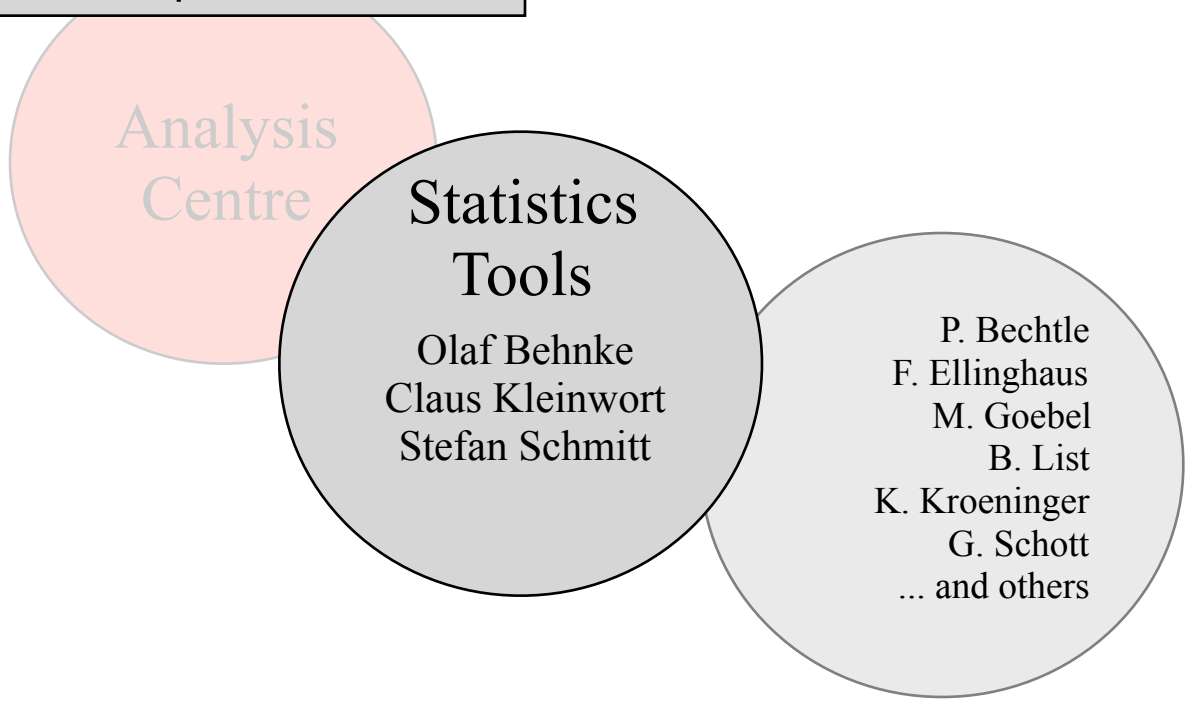
PDFs

Johannes Bluemlein
Sasha Glazov
Sven-Olaf Moch

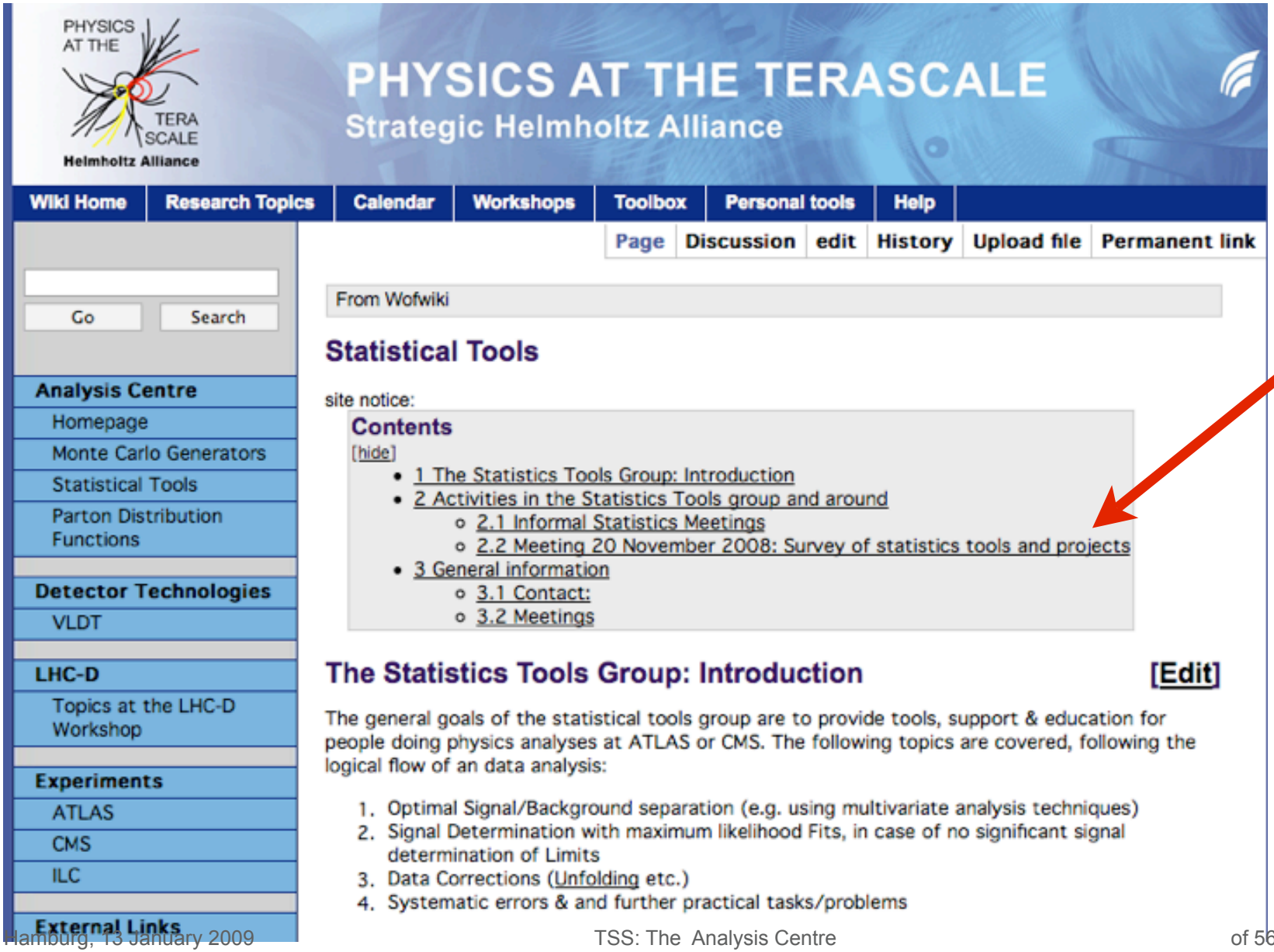
- Involvement of group members in other contexts like PDF4LHC, ATLAS PDF people.
- More international collaborations thinkable?

THE STATISTICS TOOLS GROUPS

- Development + implementation of statistics tools
- Contact to CERN statistics committee etc.
- Service for students (and all analysers).
- Open analysis centre position to be filled soon.
- Since a few months: Informal monthly meeting to discuss any upcoming statistics question.



STATISTICS TOOLS GROUPS: WIKI



STATISTICS TOOLS: PROJECTS

November 2008: Survey on statistics projects in Alliance institutes:

- RooStatsCms, a combination and limit tool (D. Piparo, G. Schott, G. Quast).
- BAT - a Bayesian Analysis Tool (A. Caldwell, D. Kollar, K. Kroeninger - see also the arXiv paper
- Fittino - a tool for measuring MSSM parameters using collider and low-energy observables (P. Bechtle et al.)
- GFITTER - a generic fitting package for HEP model testing (M. Goebel, J. Haller et al.)
- Millepede II - linear least square fits with a large number of parameters] (V. Blobel)
- lvmini - a fitting tool for large-scale optimization (V. Blobel)
- Unfolding package (S. Schmitt)

Role of Statistics Tools group:
- Keep contact to these projects.
- Help them to finalise their work and “sell” it.
- Help to promote the projects.
- Own scientific contributions.

CERN interests (examples):
- Implementation of V. Blobel’s lvmini ...
- Concrete suggestions for work on TMVA from A. Hoecker ...

INFORMAL STAT. MEETINGS

Informal statistics meetings [Edit]

The Statistics Tools group has started an informal meeting (at DESY, on a monthly basis) in which everybody's statistics questions and real-life problems can be discussed. The meetings are (normally) scheduled every third thursday in a month.

The next dates are: [Edit]

- 18 December 2008, 10 o'clock, SR 5
- 15 January 2009, 10 o'clock, SR 3a
- 19 February 2009, 10 o'clock, SR 3a

Short documentations of questions [Edit]

that were discussed during the meetings are provided. Check them out!

- Leptoquark limits determination as a function of the mass.
- Upsilon resonances (1s,2s,3s) mass peak fit.
- Kinematic constraint fit of a decay length
- Averaging two correlated measurement.
- Treatment of asymmetric errors.

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From Wofwiki

Kinematic constraint fit

site notice:

Kinematic constraint fit of a decay length with unknowns [Edit]

E.g. determining the decay length of K0s -> pi0 pi0 -> 4 gamma.

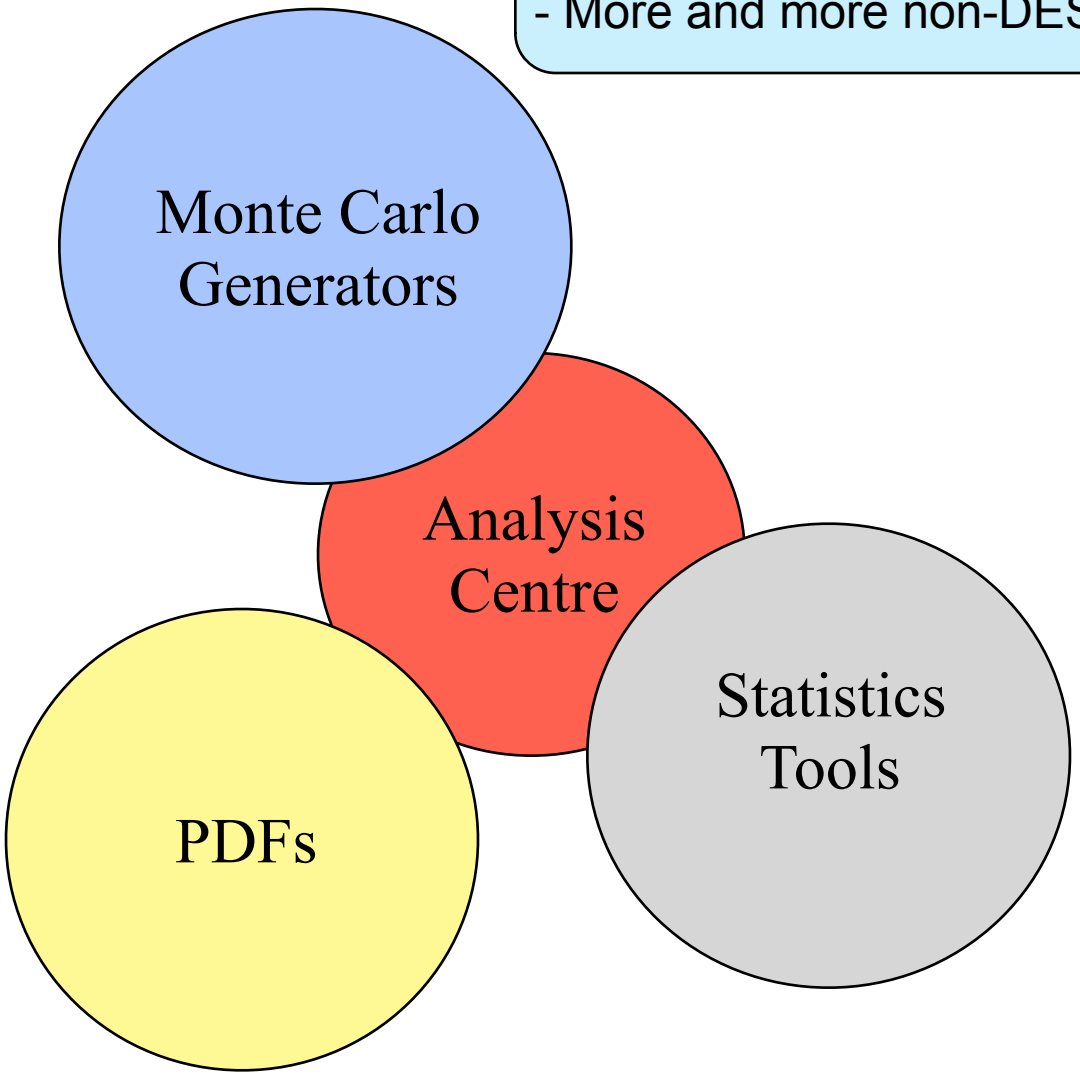
the K0s is produced in ppbar -> K0s K+ pi- . The problem is in that case there is no 'visible' information at the decay vertex, constraints are the K0s and pi0 masses, the K0s momentum is known as the recoil from the K- and pi- since the primary reaction is at rest.

Recommendations: [Edit]

- It is recommended to try in a constraint fit to replace unknowns directly by constraint information, e.g. not to introduce the K0s momentum as unknown and have lagrange multipliers for the momentum constraints but rather directly to replace \vec{P_k0s} = -\vec{P_K+} - \vec{P_pi-}
- It might be that certain kinematic configurations cannot be reconstructed, for instance if all the decays happen in a plane. Such events could be identified and rejected.

ACTIVITIES

- Introductory schools.
- Regular group meetings.
- More and more non-DESY contributions.



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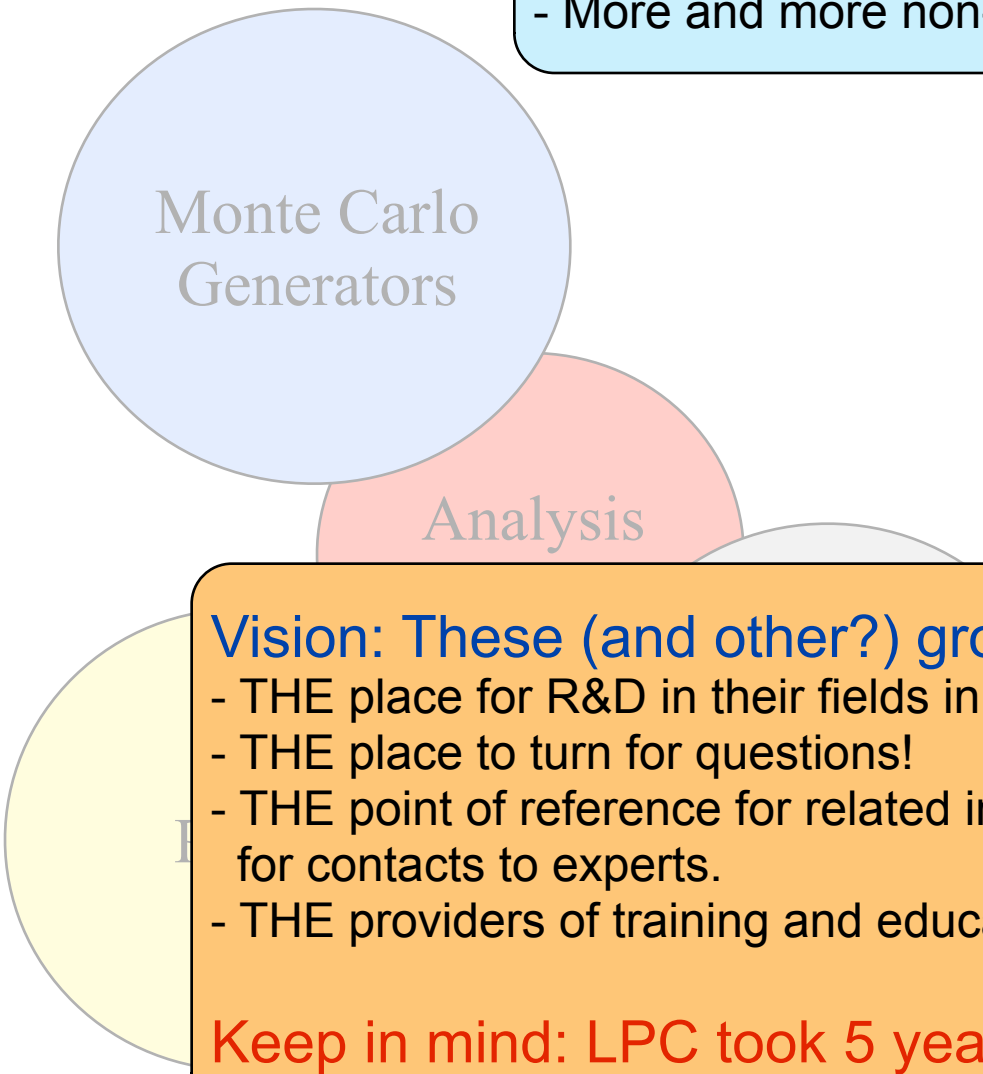


Vision: These (and other?) groups become
- THE place for R&D in their fields in Germany!
- THE place to turn for questions!
- THE point of reference for related information or for contacts to experts.
- THE providers of training and education in their fields.

Keep in mind: LPC took 5 years to build up!

EDUCATION

Past:
- MC School, 100 participants
- Statistics Tools School, 120 participants
- PDF School, 40 participants.

In preparation:
- Fitting Workshop, March 30 - April 1.
- MC School 2009, April 20-24.
- Computer Alg. School, March 29 - April 3.

EDUCATION

Past:
- MC School, 100 participants
- Statistics Tools School, 120 participants
- PDF School, 40 participants.

Lessons we learned:
- Basic level needed! Do not only bind in world experts but experience from universities!
- Clearly define and announce the intended audience and prerequisites!
- Record and publish as web lectures.
- Also prepare exercises as self-contained tutorials that everybody can follow on their own.

Education aspect of centre considered by many the most relevant point of centre!

In preparation:
- Fitting Workshop, March 30 - April 1.
- MC School 2009, April 20-24.
- Computer Alg. School, March 29 - April 3.

EDUCATION

Stat. Tools School, November 2008:
... Many happy people ...

EDUCATION

Stat. Tools School, November 2008:
... Many happy people ...

Lessons learned at Stat. School:
- Details of Frequentist versus Bayesian approach.
- Developments in multi-variate analysis techniques.
- No cut variations for systematic checks!
- Most discoveries are wrong (L. Demortier).

EXAMPLE : MC SCHOOL 2008

Physics studies:

For all studies following, run CASCADE to produce a HEPMC output file (or use the already generated one, to have enough statistics) and analyse the output with the help of the program `hepmc_analysis.exe` in

`/afs/desy.de/group/alliance/mcg/public/mcschool2008/examples/HepMC`

Please copy the files to your cascade directory, and edit the file `hepmc_analysis.cc` according to your needs.

- **physics to be investigated: $t\bar{t}$ production at the LHC**
  - Process Nr for heavy quark production is: `IPRO=11`. You also need to select, which of the heavy quarks you want to produce, this is done via `IHFL=6` (`top=6, bottom=5 and charm = 4`).
  - find out, where the top quark sits in the event record
    - what are the different entries ?
    - in the program `hepmc_analysis.cc` print a listing of the event record for 5 events (which is already in the code)
    - try to draw the color stings which combine the top quarks with the proton remnants
    - understand how the event record is build, and how to extract information
    - consult the HEPMC primer how to extract infos from the event record

- plot:
  - $p_\perp$ and η of top quark
  - calculate $p_\perp$ of $t\bar{t}$ pair
  - charged particle multiplicity in central region for top events ($|\eta| < 2.5$)
  - charged particle multiplicity in central region ($|\eta| < 2.5$) also as function of energy deposit in fwd region. Require summed energy in $6 < \eta < 7$ to be larger than $E_{fwd} > 100, 500, 1000$ GeV

- **studies:**
  - effect of initial & final state PS on $p_\perp$ and η of top quark
  - effect of initial & final state PS on $p_\perp$ of $t\bar{t}$ pair
  - effect of initial & final state PS on charged particle multiplicity ($|\eta| < 2.5$)
  - to switch on/off initial and final state parton shower, user switch `IFPS` in steering file
  - use DGLAP instead of CCFM evolution (via switch ICCFM =0/1 in steering file) and check the effect of the different initial state parton shower evolution on $p_\perp$ and η of top quark and the $p_\perp$ of $t\bar{t}$ pair
  - understand why there is a difference at large $p_\perp$ of $t\bar{t}$ pair
  - use high statistics sample with already generated files available on `/afs/desy.de/group/alliance/mcg/public/mcschool2008/examples/Cascade` to study effect at large transverse momenta.
  - compare your result using DGLAP and CCFM uPDFs with the distribution obtained from MC@NLO (hep-ph/0305252)

- **physics to be investigated: Higgs production at the LHC (if time left, otherwise leave it as a homework exercise)**
  - run Higgs production at LHC (`IPRO=102`)
  - plot pt of Higgs
  - effect of initial and final state PS
  - "jet" (high pt parton) multiplicity

- **investigation of random number generators**
  - CASCADE uses RLUXGO: find a description on the web... cernlib
  - check effect on $p_\perp$ and charged particle multiplicity by changing random number seed
  - check effect on $p_\perp$ and charged particle multiplicity by changing to different luxory levels of the random number generator (what do they mean ?)

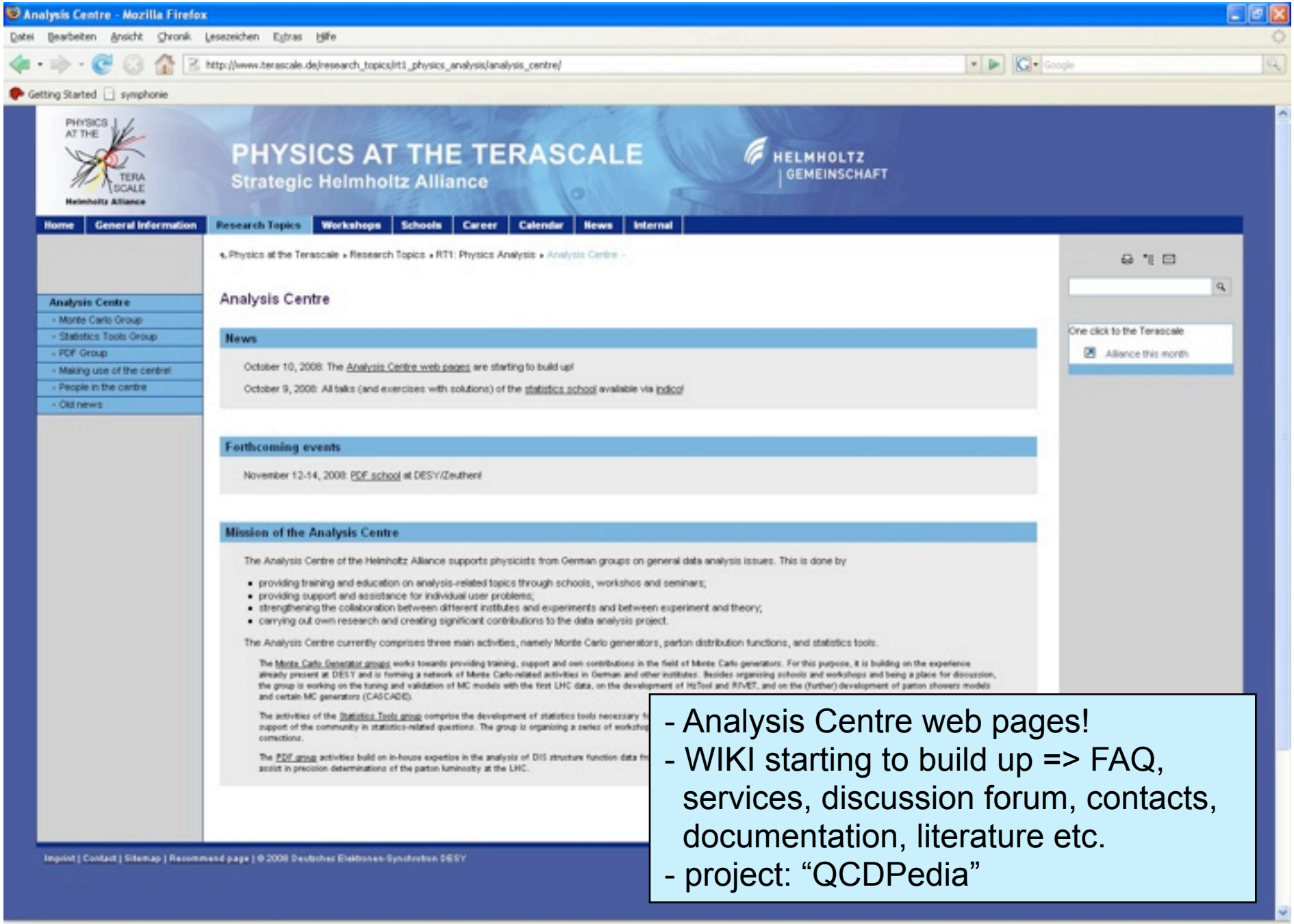
Learn about
- underlying physics
- MC techniques
- implementation
- problems and potentials in physics studies
- other people working on similar topics
- ...

EDUCATION: IDEAS AND PLANS

- HEP basics lecture series based on university experience.
- Introductory course twice (?) a year (level: below Maria Laach):
  pp physics, statistics, ROOT, experiment software,
- Course “HEP Statistics for beginners”.
- Course “MC for beginners”: Distributions, integration, parton showers, ...
- “Data analysis for theorists”, “Theory for experimentalists!”: LHC physics!
- Scientific computing (bugs, memory leaks, non-standard ROOT/C++)
- Detector understanding with first data: reconstruction, calibration, etc.
- Minimum bias physics: What to learn from it? What is it?
- Established analysis techniques (from HERA and the Tevatron).
- Continuation, improvement, standardisation of existing schools.

Intense discussion with Analysis Project Board and universities!

Currently setting up (final) list of events for 2009 and 2010!


Analysis Centre - Mozilla Firefox
PHYSICS AT THE TERASCALE
Strategic Helmholtz Alliance
HELMHOLTZ GEMEINSCHAFT
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PDF Group
Making use of the centre!
People in the centre
Old news
Analysis Centre
News
October 10, 2008: The Analysis Centre web pages are starting to build up!
October 9, 2008: All talks (and exercises with solutions) of the statistics school available via Indico!
Forthcoming events
November 12-14, 2008: PDF school at DESY/Zeuthen!
Mission of the Analysis Centre
The Analysis Centre of the Helmholtz Alliance supports physicists from German groups on general data analysis issues. This is done by
providing training and education on analysis-related topics through schools, workshos and seminars;
providing support and assistance for individual user problems;
strengthening the collaboration between different institutes and experiments and between experiment and theory;
carrying out own research and creating significant contributions to the data analysis project.
The Analysis Centre currently comprises three main activities, namely Monte Carlo generators, parton distribution functions, and statistics tools.
- Analysis Centre web pages!
- WIKI starting to build up => FAQ, services, discussion forum, contacts, documentation, literature etc.
- project: “QCDPedia”

WHAT ELSE?

Opportunities in the groups
- Present your work to a larger / different (experiment-independent) audience.
- Contribute to one of the group projects.
- For universities: Spend time at DESY?

Seminars and presentations:
- Setting up statistics seminar series.
- Lecture series on HEP basics.
- Open for wishes and suggestions!

Analysis Centre

Support:
- MC: anacentre-mc@desy.de
- Statistics Tools: anacentre-statistics@desy.de
- PDF: anacentre-pdf@desy.de

"Discussion days", "Pheno weeks"
- Bring together few experts for few days.
- Experience: Very productive! (Marchesini, Huston, ...)
- Collaboration of experiment and theory - important!
- Many ideas around.

"Knowledge data base"
Who is doing what where and is willing to answer questions.
=> see next 2 slides.

ANALYSIS WORKING GROUPS

According to Alliance proposal:

- Analysis working groups combine people from both experiment and theory and/or from both ATLAS and CMS.
- Analysis working groups bring together people from different institutes.
- Working groups supported by Analysis Project Board or Virtual Theory Institute.

Established groups:

- Mtautau working group (see next slide)
- Central jet veto in vector-boson fusion.
- Higgs production in association with heavy quarks
- BSM parameter determination at the LHC
- plus two theory groups (supported by VTI) and one exp. idea.

Question: Can we / should we go further?

- More activities?
- Also support more initiatives within the experiments (a la LPC@Fermilab)?
- Necessity? Overview?
- Some political issues with funding agencies / BMBF / FSPs?

ANALYSIS WORKING GROUPS

"Knowledge data base":

Who is doing what where and is willing to answer questions?

Purpose:

- Overview of activities
- Starting-point for newcomers
- Crystallisation seed for small, focused (multi-institute) "analysis working groups"

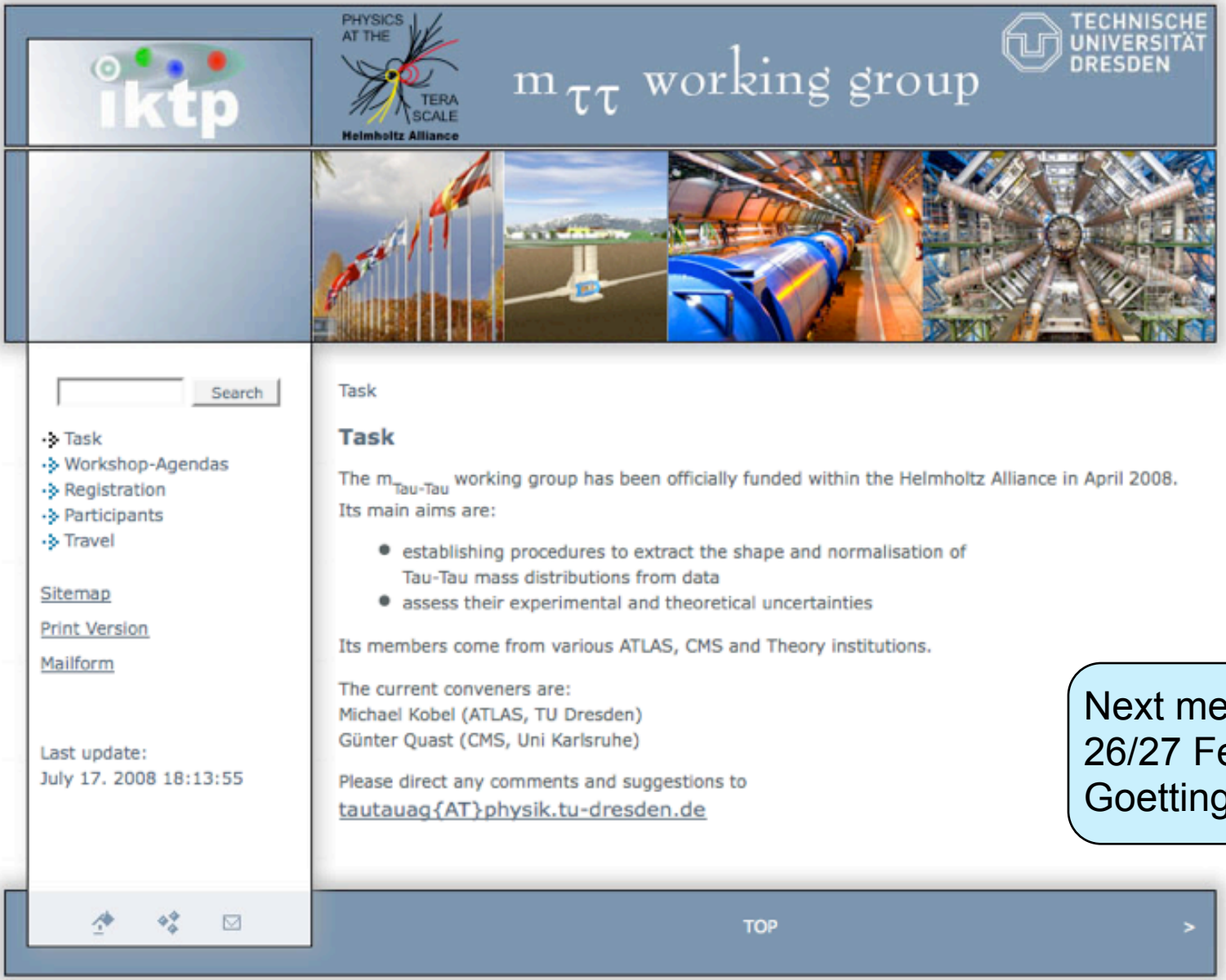
	Fitting	PDF	MC	jet cal	Z->ee	tau ID	
A.B.	X						
C.D.	X		Herwig	X			
city				X	X		
group			Herwig			X	
I			Sherpa	X		X	
you	X					X	
we	X						
nobody				X			
...							

Use cases (examples from real life!):

1. New Ph.D. student at university XYZ spends one year to learn basics of mini black holes in ATLAS. Then he/she + supervisor find out topic is covered and their achievements are since long obsolete.
2. Newcomer is looking for low-threshold introduction to topic ABC, and for necessary technical expertise. Too shy to ask CERN working group convenors.

=> Overview of activities and "responsibles" (experienced postdocs, credits!) helps. Covered by experiment working groups? My feeling: Not always!

WORKING GROUPS: EXAMPLE



Next meeting: 26/27 February, Goettingen.

OUTLINE

Reminder: The Helmholtz Alliance "Physics at the Terascale" and its Analysis Centre

- Helmholtz Alliances, "Phsics at the Terascale"
- The Analysis Centre
- DESY and the Analysis Centre
- A working example: The LPC @ FermiLab

The Analysis Centre: Activities, groups, services

- The MC, Statistics Tools and PDF groups
- Education: Schools, Workshops, Discussion Days, Seminars, Lectures
- Analysis Working Groups
- Further activities: Support, web/WIKI, ...

Status and Outlook

- Achievements
- Problems, handicaps obstacles
- Questions and discussion ...

ACHIEVEMENTS

Active working groups!

- MC, Statistics Tools and PDF groups.
- Rich research programmes of group members and groups.
- Good connections to the relevant communities
  => good opportunities for impact and visibility!

Well-accepted education programme!

- Past schools well received. Some lessons learned!
- Rich future programme currently under discussion / being implemented.
- Open for suggestions and wishes.

Analysis working groups!

- Some prototypes for groups connecting different communities: mtautau, jet veto in VBF, theory projects, ...
- Some more ideas for projects around b tagging / tau ID, alignment, ...?
- Some “political” issues? Discussion of real necessity?

... and some more smaller activities (WIKI, meetings, ...)

ACHIEVEMENTS AND HANDICAPS

The Analysis Centre: A useful structure!

- The goals of the Alliance and the centre are widely accepted.
- The Alliance and the centre offer large resources (money, contacts, knowledge, spirit, ideas ...).
- The networking approach as a source for more efficiency, communication, and impact.

The Analysis Centre: A structure with handicaps?

- Networks require more than one active node. Input from universities? => tendency towards hesitation: “What is in it for us?”
- Try to find more “niches” for activities - avoid pure doubling of structure and information!
- Necessity of “critical mass”: DESY (and we all) will only profit from the centre if many of us contribute one way or the other.

Handicaps ...

... see next page ....

CHALLENGES

Time scale of the Alliance: End in 2012! Three more years to establish Alliance / Analysis Centre. First reasonable LHC data only in 2010(?)! Need to get going.

Doubling of information, structures, efforts? Overlap with experiment-specific structures? Otherwise only irrelevant work? Feedback from experiments?

"Oh, this alliance is **just a means for DESY** to maintain their status as a major particle physics lab - but there is nothing in it for us ..."

Support of **experiment-specific activities politically difficult** (problem of double-financing with FSPs / BMBF). But increase of efficiency mainly in experiment-specific daily work.

"But what is in it for me? I mean - **what credits do I get** for my contributions? Who acknowledges my work for the alliance?"

... many activities just started very recently (many positions only filled in September or October - some not yet filled at all)! => **slow start**.

Interest from DESY colleagues. Only 11 out of ~100 scientists connected, most with small fractions of their time.

FINALLY ... QUESTIONS

- "Why go to DESY when all the fun is at CERN?"
- Who needs it?
- Where can we really have an impact? How? How to justify all the Helmholtz money?
- What kind of results do we expect from the Alliance ?
- When do we consider it a success?
- Where can we contribute in addition to existing projects?
- How can we, as DESY staff, formulate a vision for DESY's HEP future?
- How to convince the universities that the Alliance can be beneficial for them?
- Why not get eastern-european (long DESY tradition) and maybe even scandinavian colleagues involved?
- Why not have more (informal) discussions among DESY HEP colleagues about Alliance / Analysis Centre / future ...?
- ...

JOIN THE ANALYSIS CENTRE ...

... because you will receive recognition for your contribution to this new and promising structure.

... because DESY's HEP future (and the future of those interested in HEP at DESY) depends on the Alliance and the centre.

... it's a good place to do the service to the community that you before did on the HERA experiments.

... because there are so many friendly people involved ;-)

... DESY, the Alliance and the community need you!

... because there are many interesting projects and opportunities!

Thank you very much for your attention!

BACKUP

THE LPC @ FERMILAB

LPC Mission Statement:

The LHC Physics Center (LPC) at FNAL was created so the USCMS community can provide the maximum possible service to the CMS experiment. Our goal is to ensure that those physicists who must reside inside the United States can still contribute optimally to the many tasks required for the CMS experiment to produce physics and be full members of the CMS team. The components of the LPC are:

- A "brick and mortar" location for CMS physicists to find experts on all aspects of data analysis, particle ID, software, and event processing within the US, working during hours convenient for U.S.-based physicists.
- A center of physics excellence within the US for LHC physics.
- A place for workshops/conferences/gatherings on LHC physics.
- A place for the training of graduate and postgraduate scientists.
- A center for the development of software and physics analysis in the U.S.
- A "remote operations center" that CMS physicists can use to participate in data taking and quality control for the CMS experiment in the U.S.
- A tool to help provide a graceful transition between the Tevatron and LHC experiments for those physicists participating in both, maximizing the manpower available to each during the transition time.